

impacts associated with the proposed actions.

With regard to potential nonradiological impacts, the proposed actions involve features located entirely within the restricted area as defined in 10 CFR Part 20. They do not affect nonradiological plant effluents and have no other environmental impact.

Accordingly, the Commission concludes that there are no significant nonradiological environmental impacts associated with the proposed actions.

Alternatives to the Proposed Actions

Since the Commission has concluded there is no measurable environmental impact associated with the proposed actions, any alternatives with equal or greater environmental impact need not be evaluated. As an alternative to the proposed actions, the staff considered denial of the proposed actions. Denial of the application would result in no change in current environmental impacts. The environmental impacts of the proposed actions and the alternative action are similar.

Alternative Use of Resources

These actions do not involve use of resources not previously considered in the Final Environmental Statement for the Vermont Yankee Nuclear Power Station.

Agencies and Persons Consulted

In accordance with its stated policy, on July 21, 1995, the staff consulted with the Vermont State official, Mr. William K. Sherman of the Vermont Department of Public Service, regarding the environmental impact of the proposed actions. The State official had no comments.

Finding of No Significant Impact

Based upon the environmental assessment, the Commission concludes that the proposed actions will not have a significant effect on the quality of the human environment. Accordingly, the Commission has determined not to prepare an environmental impact statement for the proposed exemption and revocation of exemption.

For further details with respect to the proposed actions, see the application dated June 29, 1995, which is available for public inspection at the Commission's Public Document Room, The Gelman Building, 2120 L Street, NW., Washington, DC, and at the local public document room located at the Brooks Memorial Library, 224 Main Street, Brattleboro, VT 05301.

Dated at Rockville, Maryland this 17th day of August 1995.

For the Nuclear Regulatory Commission.

Ronald W. Hernan,

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[Docket No. 50-414]

Duke Power Company, et al. (Catawba Nuclear Station, Unit No. 2); Exemption

I

The Duke Power Company, et al. (DPC or the licensee) is the holder of Facility Operating License No. NPF-52, which authorizes operation of the Catawba Nuclear Station, Unit No. 2 (the facility), at a steady-state reactor power level not in excess of 3411 megawatts thermal. The facility is a pressurized water reactor located at the licensee's site in York County, South Carolina. The license provides, among other things, that the Catawba Nuclear Station is subject to all rules, regulations, and Orders of the U.S. Nuclear Regulatory Commission (the Commission or NRC) now or hereafter in effect.

II

Section III.D.1.(a) of Appendix J to 10 CFR Part 50 requires the performance of three Type A containment integrated leakage rate tests (ILRTs) at approximately equal intervals during each 10-year service period of the primary containment. The third test of each set shall be conducted when the plant is shut down for the 10-year inservice inspection of the primary containment.

III

By letters dated May 18, 1995, and May 31, 1995, the licensee requested temporary relief from the requirement to perform a set of three Type A tests at approximately equal intervals during each 10-year service period of the primary containment. The requested exemption would permit a one-time interval extension of the third Type A test by approximately 30 months (from the 1995 refueling outage, which begins in October 1995, to the end-of-cycle 8 (EOC-8) refueling outage, currently scheduled for March 1997) and would permit the third Type A test of the second 10-year inservice inspection period to not correspond with the end of the current inservice inspection interval.

The licensee's request concluded that the proposed change, a one-time extension of the interval between the

second and third ILRTs at Catawba Unit 2, is justified for the following reasons.

The previous testing history at Catawba Unit 2 provides substantial justification for the proposed test interval extension. In each of the two previous periodic ILRTs at Catawba Unit 2, the as-found leakage was less than or equal to 48.7% of the allowable leakage, thereby demonstrating that Catawba Unit 2 is a low-leakage containment. There are no mechanisms which would adversely affect the structural integrity of the containment, or that would be a factor in extending the test interval by 30 months. However, as a preventative maintenance measure, a containment civil inspection, currently required by Appendix J prior to a Type A test, will be performed during EOC-7 in October 1995 to verify that no structural degradation exists. Any additional risk created by the longer interval between ILRTs is considered to be negligible, primarily because Type B and C testing will continue unchanged.

Additionally, the licensee stated that its exemption request meets the requirements of 10 CFR 50.12, paragraphs (a)(1) and (a)(2)(ii), for the following reasons:

In order to justify the granting of an exemption to the requirements of 10 CFR Part 50, paragraph 50.12(a)(1) requires that the licensee show that the proposed exemption will not pose an undue risk to the public. That this proposed change will not pose an undue risk is demonstrated by the analysis presented in draft NUREG-1493, which concludes that an increase in the test interval to once every 20 years would "lead to an imperceptible increase in risk." The analyses in draft NUREG-1493 are considered to be specifically applicable to Catawba because: (1) The requested exemption would result in a one-time increase in the test interval to about 5 years, not 20; (2) the population density around Catawba is less than that used in the study (329 people per square mile, vs. 340 used in the study); (3) no ILRT at Catawba has failed; (4) the core inventory used in the study was represented by a 3412 Mwt PWR [pressurized water reactor]. Catawba is a 3411 Mwt PWR. Other factors which lead to the conclusion that the proposed change will not pose an undue risk include the fact that local leak rate testing, which identifies 97% of leakage in excess of prescribed limits, will remain in place at its current test frequency; the detailed, proceduralized containment civil inspection which is normally performed in conjunction with an ILRT will be performed in place of the scheduled ILRT, to identify potential structural deteriorations; and the historical leak-tightness of the containment structure, as evidenced by two successive ILRTs in which the as-found leakage did not exceed 48.7% of the allowable leakage rate. A table which shows the leak test history of Catawba Unit 2 follows this Attachment.

A comparison was made between the risk analysis presented in draft NUREG-1493 and a probabilistic risk assessment performed for Catawba Nuclear Station. While the quantitative results of the NUREG are not directly applicable to plants not used in the study, conclusions similar to those presented in the NUREG can be made concerning Catawba. NUREG-1493 indicates that reactor accident risks are dominated by accident sequences that result in failure or bypass of the containment. This conclusion is also valid for Catawba. Considering only the Catawba accident sequences that do not result in containment failure, containment leakage contributes approximately 0.08 to 0.09 percent to off-site risk (whole-body person-rem, thyroid nodules, and latent fatalities). NUREG-1493 indicated that containment leakage contributed from 0.02 to 0.10 percent to latent cancer risk. The comparison between the analysis of NUREG-1493 and the Catawba PRA concludes that increases in containment leakage at Catawba are expected to produce increases in accident risk similar to the results in NUREG-1493.

Special circumstances, as defined in 10 CFR 50.12(a)(2)(ii), are considered to exist if "application of the regulation * * * is not necessary to achieve the underlying purpose of the rule." The purposes of the rule, as stated in Section I of Appendix J, are to ensure that: a) leakage through the primary reactor containment and systems and components penetrating containment shall not exceed allowable values, and b) periodic surveillance of reactor containment penetrations and isolation valves is performed so that proper maintenance and repairs are made. One of the significant factors in assuring that the proposed exemption will not pose an undue risk to the public, as noted above, is the local leak rate testing (LLRT) which is performed. That the LLRT program at Catawba provides an effective mechanism for maintaining containment integrity is perhaps best demonstrated by the fact that the most recent ILRT at Catawba Unit 2 was performed at the front end of the refueling outage; before any repairs or adjustments were made to valves or penetrations. Nevertheless, the as-found leakage did not exceed 48.7% of the allowable leakage rate. The fact that no leakage paths were identified by an ILRT, and that the ILRT met the acceptance criteria with significant margin confirms the results of the Type B and C testing.

The frequency and scope of the Type B and C LLRT program are not being changed by this exemption request. The LLRT program will continue to effectively detect containment leakage resulting from the degradation of active containment isolation components, as well as containment penetrations. Administrative limits have been established for each Type B or C component at a fraction of the allowable leak rate, such that any leakage detected in excess of the administrative limit will indicate a potential valve or penetration degradation. In instances in which a component's leakage exceeds its administrative limit, proceduralized controls in the test program require that a work order be written to repair the component.

IV

Section III.D.1.(a) of Appendix J to 10 CFR Part 50 states that a set of three Type A leakage rate tests shall be performed at approximately equal intervals during each 10-year service period.

The licensee proposes an exemption to this section which would provide a one-time interval extension for the Type A test by approximately 30 months. The Commission has determined that, pursuant to 10 CFR 50.12(a)(1), this exemption is authorized by law, will not present an undue risk to the public health and safety, and is consistent with the common defense and security. The Commission further determined, for the reasons discussed below, that special circumstances, as provided in 10 CFR 50.12(a)(2)(ii), are present justifying the exemption; namely, that application of the regulation in the particular circumstances is not necessary to achieve the underlying purpose of the rule. The underlying purpose of the requirement to perform Type A containment leak rate tests at approximately equal intervals during the 10-year service period, is to ensure that any potential leakage pathways through the containment boundary are identified within a time span that prevents significant degradation from continuing or becoming unknown. The NRC staff has reviewed the basis and supporting information provided by the licensee in the exemption request. The NRC staff has noted that the licensee has a good record of ensuring a leak-tight containment. All Type A tests have passed with significant margin and the licensee has noted that the results of the Type A testing have been confirmatory of the Type B and C tests which will continue to be performed. The licensee has stated that it will continue to perform the general containment civil inspection although it is only required by Appendix J (Section V.A.) to be performed in conjunction with Type A tests. The NRC staff considers that these inspections, though limited in scope, provide an important added level of confidence in the continued integrity of the containment boundary.

The NRC staff has also made use of a draft staff report, NUREG-1493, which provides the technical justification for the present Appendix J rulemaking effort which also includes a 10-year test interval for Type A tests. The integrated leakage rate test, or Type A test, measures overall containment leakage. However, operating experience with all types of containments used in this country demonstrates that essentially all containment leakage can be detected by

local leakage rate tests (Type B and C). According to results given in NUREG-1493, out of 180 ILRT reports covering 110 individual reactors and approximately 770 years of operating history, only 5 ILRT failures were found that local leakage rate testing could not detect. This is 3% of all failures. This study agrees with previous NRC staff studies which show that Type B and C testing can detect a very large percentage of containment leaks. The Catawba Unit 2 experience has also been consistent with this.

The Nuclear Management and Resources Council (NUMARC), now the Nuclear Energy Institute (NEI), collected and provided the NRC staff with summaries of data to assist in the Appendix J rulemaking effort. NUMARC collected results of 144 ILRTs from 33 units; 23 ILRTs exceeded 1.0L_a. Of these, only nine were not due to Type B or C leakage penalties. The NEI data also added another perspective. The NEI data show that in about one-third of the cases exceeding allowable leakage, the as-found leakage was less than 2L_a; in one case the leakage was found to be approximately 2L_a; in one case the as-found leakage was less than 3L_a; one case approached 10L_a; and in one case the leakage was found to be approximately 21L_a. For about half of the failed ILRTs, the as-found leakage was not quantified. These data show that, for those ILRTs for which the leakage was quantified, the leakage values are small in comparison to the leakage value at which the risk to the public starts to increase over the value of risk corresponding to L_a (approximately 200L_a, as discussed in NUREG-1493).

Based on generic and plant-specific data, the NRC staff finds the licensee's proposed one-time exemption to permit a schedular extension of one cycle for the performance of the Appendix Type A test to be acceptable.

Pursuant to 10 CFR 51.32, the Commission has determined that granting this exemption will not have a significant impact on the human environment (60 FR 32567).

This exemption is effective upon issuance and shall expire at the completion of the 1997 refueling outage.

Dated at Rockville, Maryland, this 17th day of August 1995

For the Nuclear Regulatory Commission.

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